

Spectroscopic Results for the Rotation of Jupiter and of the Sun, obtained at the Royal Observatory, Greenwich.

(Communicated by the Astronomer Royal).

(Continued from p. 36 of the 'Monthly Notices' for November 1876. For the explanation of these observations see pp. 23 and 24 of the above No.)

Rotation of Jupiter.

Relative motion of East and West limbs in the line of sight deduced from the relative displacement of the F-line.
The slit was tangential to the limb.

Date.	Observat.	No. of Measures.	Weight.	No. of Prisms.	Position-Circle.	Width of Slit.	Line compared	Earth's Motion in Miles per Sec.	Concluded Motion.		Remarks.
									Measured.	Estimated.	
1876 June 26	M	1	$\frac{1}{2}$	$2\frac{1}{2}$	$16\frac{1}{2}$	$0\cdot5$	F	...	+40'5	...	Line very faint; the slit about 0''·6 from the planet's limb.
26	M	1	$\frac{1}{2}$	$2\frac{1}{2}$	$16\frac{1}{2}$	0·7	F	...	+11'9	...	The slit about 0''·4 from the planet's limb.
26	M	1	2	$2\frac{1}{2}$	$16\frac{1}{2}$	1·7	F	...	+30'4	...	Line much better seen, but still very faint.
Mean									+29'0		Calculated relative motion + 32 miles per second.

D 2

Rotation of the Sun.

Dispersion—Ten Compound Prisms; Magnifying Power 36.

rev. of Micrometer = 3.3 tenth-mètres, corresponding to 103 miles per second at D

= 2.0 " " 72 " " b

The readings increase towards the blue.

1876, May 30^d 4^h Observer—Mr. Christie.

Measures of the line 5161.5 (Ångström) near b_4

Micrometer Readings.

Position-Circle 270°.		Displacement.
E. Limb.	W. Limb.	E. Limb—W. Limb.
r	r	r
(1) 379	(2) 335	+ 0°044
(3) 374	(4) 346	+ 0°028
(5) 372	(6) 362	+ 0°010
(8) 400	(7) 366	+ 0°034
(10) 402	(9) 363	+ 0°039
(12) 372	(11) 342	+ 0°030
(14) 378	(13) 358	+ 0°040

Mean displacement, E. limb—W. limb +0.032
corresponding to +2.30 miles per second

Position-Circle 0° .		
S. Limb.	N. Limb.	S. Limb—N. Limb.
$\overset{r}{(1)} \cdot 634$	$\overset{r}{(2)} \cdot 649$	$\overset{r}{-0^{\circ}015}$
$(3) \cdot 645$	$(4) \cdot 635$	$+0^{\circ}010$
$(5) \cdot 610$	$(6) \cdot 613$	$-0^{\circ}003$
$(7) \cdot 628$	$(8) \cdot 621$	$+0^{\circ}007$
$(9) \cdot 646$	$(10) \cdot 639$	$+0^{\circ}007$

Mean displacement, S. limb—N. limb $+0.001$
corresponding to $+0.07$ mile per second

Probable error of 1 measure of displacement = 0.010 or 0.7 mile per second

Concluded Motion in miles per second.

	Position- Circle.	Line	No. of Obs.	E. Limb—W. Limb. Observed.	Calculated.
1876 May 29	90°	D ₁	20	+ 2.26 ± 0.16	} + 2.35
30	270	D ₁	7	+ 2.26 ± 0.27	
30	270	near <i>b</i> ₄	7	+ 2.30 ± 0.27	
				S. Limb—N. Limb.	
30	0	D ₁	6	+ 0.02 ± 0.29	
30	0	near <i>b</i> ₄	5	+ 0.07 ± 0.31	

The part of the spectrum observed was in each case at a distance of about 8" from the limb.

The position-angle of the Sun's N. Pole was $344\frac{1}{2}^{\circ}$.

The period of rotation has been taken as $25\frac{1}{3}$ days.